

REMARKS

This Amendment is responsive to the Office Action mailed October 1, 2003. Claims 1-18 were pending and the Office Action rejected all claims. Additionally, it was noted that one of the references cited in the IDS was missing, and that elements M103 and M105 had not been described. In response, the missing article is attached hereto, and the specification has been amended to describe M103 and M105, without adding any new matter.

Independent Claims 1, 10, 11 and 14 have been amended and Claim 18 has been cancelled. To overcome the § 112 objection, Claim 3 has been cancelled and Claim 4 has been amended. More particularly, Claim 1 has been amended to include the limitations of previous Claims 2 and 3. Claims 10, 11 and 14 have been amended to include the tapered reset signal. For the reasons discussed below, it is believed that the amended claims are patentable over the cited art of record, since the cited prior art does not teach nor suggest the present invention as claimed.

The rejection of the claims relies primarily on Fossum (U.S. Patent Application Publication No. US 2003/0103153 A1). Fossum's device, as understood by the present Applicant, utilizes a charge transfer scheme to try to manage the photo-generated signal in each photodiode. This "fill-and-spill" method transfers a charge packet from the photodiode diffusion, PD, over the preset barrier set by gate TX, to capacitor FD. Significantly, photodiode reset noise is not avoided since the photodiode is subsequently reset to the voltage at diffusion VDR by a conventional reset (Fig. 3E). Furthermore, additional reset noise is generated upon resetting the sample capacitor FD by conventional means (Fig. 3A). Therefore, Fossum requires two additional means to suppress two reset noises: (1) photodiode PD and (2) sample capacitor FD. Consequently, the reset noise is significant. More particularly, there is no teaching or suggestion of using a tapered reset signal to reduce the reset noise, as taught by the present application.

Kozlowski, U.S. Patent No. 6,493,030, illustrates a tapered reset in an active pixel sensor having negative feedback amplification by optimally varying the resistance of reset transistor 16 to suppress photodiode reset noise via the feedback action of the transimpedance amplifier. However, there is no teaching or suggestion of a low-noise snapshot image formation. The circuit is useful for "rolling shutter" image formation with global reset, rather than the true global "snapshot" image formation required by some applications.

Specifically, it is not obvious to one of ordinary skill in the art that photodiode reset noise, sample capacitor reset noise, or both, can be suppressed utilizing the teachings of the '030 patent. In fact, combining the teachings of Fossum and the '030, as suggested by the Office Action, is not possible since the circuit of Fossum does not support any means for negative feedback through a capacitive element to PD node 208. Combining the circuit of Fossum with the '030 teaching to suppress total reset noise is ineffective since FD reset noise is uncorrelated with respect to PD reset noise.

As noted in *In re Fritch*, 23 USPQ 2d 1780, 1783-1784 (Fed. Cir. 1992):

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination.

Here the Office Action has failed to establish a *prima facie* case of obviousness, since there is no teaching or suggestion in the references to combine them. In fact, such a combination as suggested by the Office Action is likely to be inoperable. In addition, it is improper to use the Applicant's claim as a guide to pick and choose elements or concepts from various references, without some teaching or suggestion in the art to make the combination (*Ex parte Clapp*, 227 USPQ 972, 973 (BPAI 1985)). It is believed that the Office Action merely uses the teachings of the present application as a guide to pick and choose elements from various references, where in the existing prior art there is no teaching or suggestion to make such a combination, absent the present disclosure. For these reasons it is believed that currently amended claims are patentable over the cited art of record.

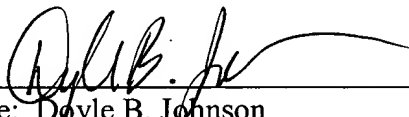
It is respectfully submitted that the present application is now in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees (or credit any overpayment) associated with this communication and which may be required under 37 CFR §1.16 or §1.17 to Deposit Account No. 50-2603, referencing **Attorney Docket No. 354096.00700. A duplicate sheet is attached.**

Respectfully submitted,

REED SMITH LLP

Dated: February 25, 2004

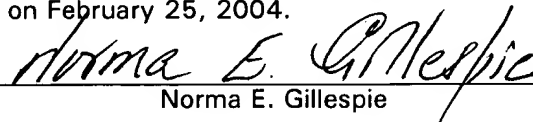
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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner of Patents and Trademarks, Alexandria, VA. 22313 on February 25, 2004.

February 25, 2004


Norma E. Gillespie